

It is according to the method of the invention advantageous selecting the conducting polymer in the second layer on a doped conjugated polymer and then preferably selecting the conjugated polymer among poly(3,4-dioxyethylene thiophene) (PEDOT), a copolymer which includes the monomer, 3,4-dioxyethylene thiophene, substituted poly(thiophenes), substituted poly(pyrroles), substituted poly(anilines) or copolymers thereof, whereas the dopant for the conjugated polymer preferably is poly(4-styrene sulphonate) (PSS).

In a preferred embodiment of the method according to the invention the doped conjugated polymer as poly(3,4-ethylenedioxythiophene) (PEDOT) doped with poly(4-styrene sulphonate) (PSS).

It is according to the invention advantageous selecting the semiconducting organic material in the third layer among conjugated polymers, or crystalline, polycrystalline, microcrystalline and amorphous organic compounds, and in case the conjugated polymer is selected, it is preferred that this is selected among the conjugated polymer in the third layer among poly(2-methoxy, 5-(2'-ethylhexyloxi)-1,4-phenylene vinylene) (MEH-PPV) or poly(3-hexylthiophene) (P3HT).

Finally it is according to the invention advantageous selecting the metal of the fourth layer among metals which have a lower work function than that of the anode and then particularly selecting the metal of the fourth layer as the same as the metal selected for the first layer, but aluminium could in any case particularly be selected as the metal of the fourth layer.

The method according to the invention is used for manufacturing the electrode arrangement in an organic thin-film diode or for manufacturing electrode arrangements in a transistor structure, especially in an organic thin-film transistor a hybrid thin-film transistor.

The invention shall now be described in more detail with reference to the accompanying drawing as well as an appended example of polymer-based diodes with high rectification ratio manufactured according to the method described in the present invention.

#### Brief Description of Drawings

Fig. 1a shows an example of the structure of a conducting polymer, viz. PEDOT-PSS.

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05/05/04